

**WHAT IS CLAIMED IS:**

1. A turbulator with offset louvers for a heat exchanger comprising:

5 a plurality of corrugated fins each having a base extending laterally and longitudinally in a strip; and

a plurality of offset louvers spaced along said base and extending longitudinally and generally perpendicular to said base in an alternating manner, said  
10 offset louvers being rolled in a direction parallel to a longitudinal axis of said strip.

2. A turbulator as set forth in claim 1 wherein said offset louvers extend longitudinally a predetermined  
15 distance.

3. A turbulator as set forth in claim 1 wherein said offset louvers are spaced laterally a predetermined distance along said base.

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4. A turbulator as set forth in claim 1 wherein said louvers extend generally perpendicular to said base a predetermined distance.

5. A turbulator as set forth in claim 1 wherein said offset louvers have a generally inverted "U" cross-sectional shape.

5 6. A heat exchanger comprising:  
a first manifold;  
a second manifold spaced from and opposing said first manifold;

10 a plurality of tubes extending laterally between and in fluid communication with said first manifold and said second manifold; and

15 a plurality of turbulators, each of said turbulators having a plurality of louvers spaced laterally and extending longitudinally in an alternating manner, said louvers being rolled in a direction parallel to a longitudinal axis thereof, one of said turbulators being disposed in one of said tubes.

20 7. A heat exchanger as set forth in claim 6 wherein said tube comprises a base, a top spaced from and opposing said base, a first side interposed between said base and said top along one side thereof, and a second side interposed between said base and said top along another side thereof, said base and said top and said first side and said second side forming a channel.

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8. A heat exchanger as set forth in claim 7 wherein said turbulator is disposed in said channel.

5 9. A heat exchanger as set forth in claim 6 wherein said turbulator comprises a plurality of corrugated fins each having a generally planar base extending longitudinally and said louvers spaced laterally and extending longitudinally along said base.

10 10. A heat exchanger as set forth in claim 9 wherein said louvers extend generally perpendicular to said base a predetermined distance.

15 11. A method of making a turbulator with offset louvers for a heat exchanger comprising the steps of:

providing a generally planar strip having a base extending laterally and longitudinally;

forming a plurality of corrugated fins each  
20 having having a plurality of offset louvers spaced along the base and extending generally perpendicular to the base in an alternating manner such that the offset louvers extend in a direction parallel to a longitudinal axis of the strip.

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12. A method as set forth in claim 11 wherein said step of forming comprises roll forming.

13. A method as set forth in claim 11 including  
5 the step of providing a pair of rollers and feeding the strip in a direction of rotation of the rollers to form the louvers.

14. A method as set forth in claim 11 wherein  
10 said step of forming comprises forming a planar portion laterally between the louvers.

15. A method as set forth in claim 11 wherein said step of forming comprises forming the louvers with a  
15 generally inverted "U" cross-sectional shape.

16. A method of making a heat exchanger comprising the steps of:

providing a plurality of tubes;

20 providing a generally planar strip having a base extending laterally and longitudinally;

forming a plurality of turbulators each having a plurality of corrugated fins with a plurality of louvers spaced laterally and extending generally perpendicular in

an alternating manner such that the louvers extend in a direction parallel to a longitudinal axis of the strip;

disposing the turbulator in the tube; and

brazing the tube and the turbulator together.

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17. A method as set forth in claim 16 wherein said step of forming comprises roll forming.

18. A method as set forth in claim 17 including  
10 the step of providing a pair of rollers and feeding the strip in a direction of rotation of the rollers to form the louvers.

19. A method as set forth in claim 17 wherein  
15 said step of forming comprises forming a planar portion laterally between the louvers.

20. A method as set forth in claim 17 wherein  
20 said step of forming comprises forming the louvers with a generally inverted "U" cross-sectional shape.